

## IN THE CLAIMS

1. **(currently amended)** A concentrated aqueous polymer dispersion with an average particle size of less than 1000 nm comprising

- a) a polymer carrier prepared by heterophase radical polymerization of at least one ethylenically unsaturated monomer in the presence of
- b) a non-polar organic light stabilizer,

wherein the weight ratio of non-polar organic light stabilizer to polymer carrier is greater than ~~[[50]]~~ 100 parts of light stabilizer per 100 parts of carrier.

2. **(original)** A concentrated aqueous polymer dispersion according to claim 1 comprising additionally a non-ionic, cationic or anionic surfactant.

3. **(currently amended)** A concentrated aqueous polymer dispersion according to claim 1 wherein the weight ratio of non-polar organic light stabilizer to polymer carrier is equal or greater than ~~[[80]]~~ 120 parts per 100 parts.

4. **(original)** A concentrated aqueous polymer dispersion according to claim 1 wherein the average particle size is less than 500 nm.

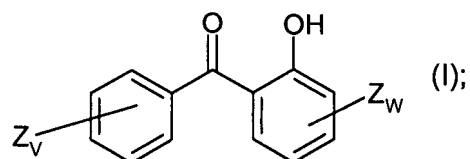
5. **(original)** A concentrated aqueous polymer dispersion according to claim 1 wherein the non-polar organic light stabilizer is selected from the group consisting of a hydroxyphenyl benzotriazol UV-absorber, a hydroxyphenyl triazine UV-absorber, a hydroxybenzophenone UV-absorber, an oxalic anilide UV-absorber and a sterically hindered amine light stabilizer or mixtures thereof.

6. **(original)** A concentrated aqueous polymer dispersion according to claim 1 wherein the non-polar organic light stabilizer has a water solubility of less than 1 % by weight at room temperature and atmospheric pressure.

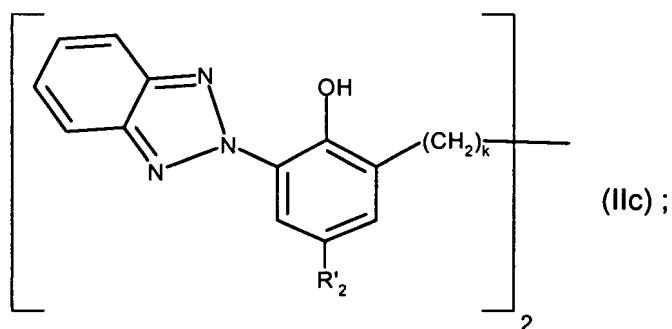
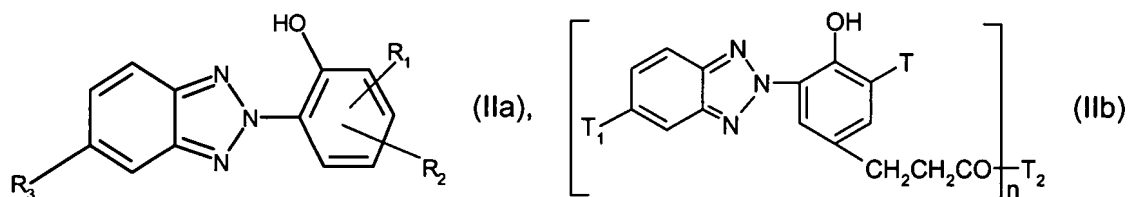
7. **(original)** A concentrated aqueous polymer dispersion according to claim 1 wherein the ethylenically unsaturated monomer is selected from the group consisting of C<sub>1</sub>-C<sub>18</sub>acrylates, C<sub>1</sub>-C<sub>18</sub>methacrylates, acrylic acid, (meth)acrylic acid, styrene, vinyltoluene, hydroxy-functional

acrylates or (meth)acrylates, acrylates or (meth)acrylates derived from alkoxyated alcohols and multifunctional acrylates or (meth)acrylates or mixtures thereof.

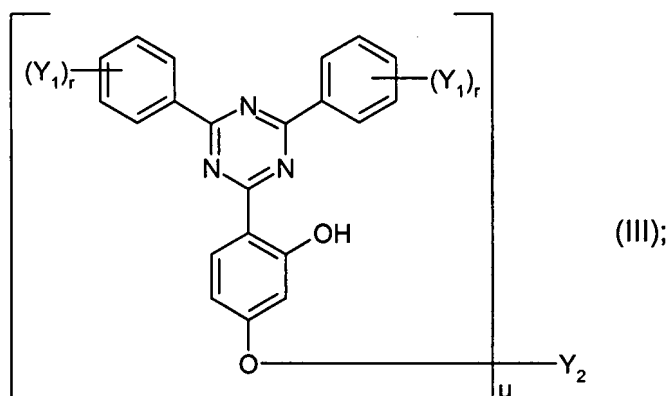
8. **(original)** A concentrated aqueous polymer dispersion according to claim 5 wherein the hydroxybenzophenone is of formula I



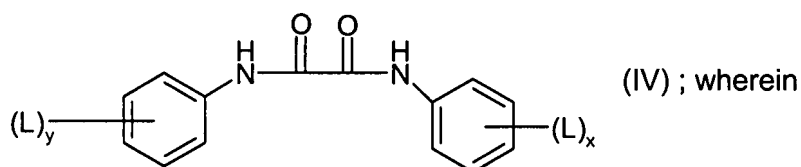
the 2-hydroxyphenylbenzotriazole is of formula IIa, IIb or IIc



the 2-hydroxyphenyltriazine is of formula III



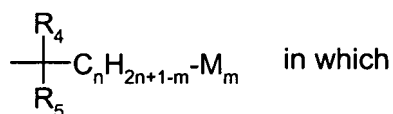
and the oxanilide is of formula (IV)



in the compounds of the formula (I) v is an integer from 1 to 3 and w is 1 or 2 and the substituents Z independently of one another are hydrogen, halogen, hydroxyl or alkoxy having 1 to 12 carbon atoms;

in the compounds of the formula (IIa),

R<sub>1</sub> is hydrogen, alkyl having 1 to 24 carbon atoms, phenylalkyl having 1 to 4 carbon atoms in the alkyl moiety, cycloalkyl having 5 to 8 carbon atoms or a radical of the formula



R<sub>4</sub> and R<sub>5</sub> independently of one another are alkyl having in each case 1 to 5 carbon atoms, or R<sub>4</sub>, together with the radical C<sub>n</sub>H<sub>2n+1-m</sub>, forms a cycloalkyl radical having 5 to 12 carbon atoms, m is 1 or 2, n is an integer from 2 to 20 and

M is a radical of the formula -COOR<sub>6</sub> in which

R<sub>6</sub> is hydrogen, alkyl having 1 to 12 carbon atoms, alkoxyalkyl having in each case 1 to 20 carbon atoms in the alkyl moiety and in the alkoxy moiety or phenylalkyl having 1 to 4 carbon atoms in the alkyl moiety,

R<sub>2</sub> is hydrogen, halogen, alkyl having 1 to 18 carbon atoms, and phenylalkyl having 1 to 4 carbon atoms in the alkyl moiety, and

$R_3$  is hydrogen, chlorine, alkyl or alkoxy having in each case 1 to 4 carbon atoms or  $-\text{COOR}_6$  in which  $R_6$  is as defined above, at least one of the radicals  $R_1$  and  $R_2$  being other than hydrogen;

in the compounds of the formula (IIb)

T is hydrogen or alkyl having 1 to 6 carbon atoms,

$T_1$  is hydrogen, chlorine or alkyl or alkoxy having in each case 1 to 4 carbon atoms,

n is 1 or 2 and,

if n is 1,

$T_2$  is chlorine or a radical of the formula  $-\text{OT}_3$  or  $\begin{array}{c} \text{T}_4 \\ | \\ -\text{N} \\ | \\ \text{T}_5 \end{array}$  and,

if n is 2,  $T_2$  is a radical of the formula  $\begin{array}{c} \diagup \quad \diagdown \\ \text{N} \quad \text{T}_{10} \quad \text{N} \\ \diagdown \quad \diagup \\ \text{T}_6 \quad \text{T}_6 \end{array}$  or  $-\text{O}-\text{T}_9-\text{O}-$ ;

in which

$T_3$  is hydrogen, alkyl which has 1 to 18 carbon atoms and is unsubstituted or substituted by 1 to 3 hydroxyl groups or by  $-\text{OCOT}_6$ , alkyl which has 3 to 18 carbon atoms, is interrupted once or several times by  $-\text{O}-$  or  $-\text{NT}_6-$  and is unsubstituted or substituted by hydroxyl or  $-\text{OCOT}_6$ , cycloalkyl which has 5 to 12 carbon atoms and is unsubstituted or substituted by hydroxyl and/or alkyl having 1 to 4 carbon atoms, alkenyl which has 2 to 18 carbon atoms and is unsubstituted or substituted by hydroxyl, phenylalkyl having 1 to 4 carbon atoms in the alkyl moiety, or a radical of the formula  $-\text{CH}_2\text{CH}(\text{OH})-\text{T}_7$

or  $\begin{array}{c} \text{O} \\ \diagup \quad \diagdown \\ -\text{C}-\text{CH}-\text{CH}_2 \\ | \\ \text{H}_2 \end{array}$ ,

$T_4$  and  $T_5$  independently of one another are hydrogen, alkyl having 1 to 18 carbon atoms, alkyl which has 3 to 18 carbon atoms and is interrupted once or several times by  $-\text{O}-$  or  $-\text{NT}_6-$ , cycloalkyl having 5 to 12 carbon atoms, phenyl, phenyl which is substituted by alkyl having 1 to 4 carbon atoms, alkenyl having 3 to 8 carbon atoms, phenylalkyl having 1 to 4 carbon atoms in the alkyl moiety or hydroxyalkyl having 2 to 4 carbon atoms,

$T_6$  is hydrogen, alkyl having 1 to 18 carbon atoms, cycloalkyl having 5 to 12 carbon atoms, alkenyl having 3 to 8 carbon atoms, phenyl, phenyl which is substituted by alkyl having 1 to 4 carbon atoms, phenylalkyl having 1 to 4 carbon atoms in the alkyl moiety,

T<sub>7</sub> is hydrogen, alkyl having 1 to 18 carbon atoms, phenyl which is unsubstituted or substituted by hydroxyl, phenylalkyl having 1 to 4 carbon atoms in the alkyl moiety, or -CH<sub>2</sub>OT<sub>8</sub>,

T<sub>8</sub> is alkyl having 1 to 18 carbon atoms, alkenyl having 3 to 8 carbon atoms, cycloalkyl having 5 to 10 carbon atoms, phenyl, phenyl which is substituted by alkyl having 1 to 4 carbon atoms, or phenylalkyl having 1 to 4 carbon atoms in the alkyl moiety,

T<sub>9</sub> is alkylene having 2 to 8 carbon atoms, alkenylene having 4 to 8 carbon atoms, alkynylene having 4 carbon atoms, cyclohexylene, alkylene which has 2 to 8 carbon atoms and is interrupted once or several times by -O-, or a radical of the formula -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OT<sub>11</sub>OCH<sub>2</sub>CH(OH)CH<sub>2</sub>- or -CH<sub>2</sub>-C(CH<sub>2</sub>OH)<sub>2</sub>-CH<sub>2</sub>-,

T<sub>10</sub> is alkylene which has 2 to 20 carbon atoms and can be interrupted once or several times by -O-, or cyclohexylene,

T<sub>11</sub> is alkylene having 2 to 8 carbon atoms, alkylene which has 2 to 18 carbon atoms and is interrupted once or several times by -O-, 1,3-cyclohexylene, 1,4-cyclohexylene, 1,3-phenylene or 1,4-phenylene, or

T<sub>10</sub> and T<sub>6</sub>, together with the two nitrogen atoms, are a piperazine ring;

in the compounds of formula (IIc)

R'<sub>2</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl and k is a number from 1 to 4;

in the compounds of the formula (III)

u is 1 or 2 and r is an integer from 1 to 3, the substituents

Y<sub>1</sub> independently of one another are hydrogen, hydroxyl, phenyl or halogen, halogenomethyl, alkyl having 1 to 12 carbon atoms, alkoxy having 1 to 18 carbon atoms, alkoxy having 1 to 18 carbon atoms which is substituted by a group -COO(C<sub>1</sub>-C<sub>18</sub>alkyl);

if u is 1,

Y<sub>2</sub> is alkyl having 1 to 18 carbon atoms, phenyl which is unsubstituted or substituted by hydroxyl, halogen, alkyl or alkoxy having 1 to 18 carbon atoms;

alkyl which has 1 to 12 carbon atoms and is substituted by -COOH, -COOY<sub>8</sub>, -CONH<sub>2</sub>, -CONHY<sub>9</sub>, -CONY<sub>9</sub>Y<sub>10</sub>, -NH<sub>2</sub>, -NHY<sub>9</sub>, -NY<sub>9</sub>Y<sub>10</sub>, -NHCOY<sub>11</sub>, -CN and/or -OCOY<sub>11</sub>;

alkyl which has 4 to 20 carbon atoms, is interrupted by one or more oxygen atoms and is unsubstituted or substituted by hydroxyl or alkoxy having 1 to 12 carbon atoms, alkenyl having 3 to 6 carbon atoms, glycidyl, cyclohexyl which is unsubstituted or substituted by hydroxyl, alkyl having 1 to 4 carbon atoms and/or -OCOY<sub>11</sub>, phenylalkyl which has 1 to 5 carbon atoms in the alkyl moiety and is unsubstituted or substituted by hydroxyl, chlorine and/or methyl, -COY<sub>12</sub> or -SO<sub>2</sub>Y<sub>13</sub>, or,

if u is 2,

$Y_2$  is alkylene having 2 to 16 carbon atoms, alkenylene having 4 to 12 carbon atoms, xylylene, alkylene which has 3 to 20 carbon atoms, is interrupted by one or more -O- atoms and/or is substituted by hydroxyl,  $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{-O-}Y_{15}\text{-OCH}_2\text{CH}(\text{OH})\text{CH}_2\text{-}$ ,  $-\text{CO-}Y_{16}\text{-CO-}$ ,  $-\text{CO-NH-}Y_{17}\text{-NH-CO-}$  or  $-(\text{CH}_2)_m\text{-CO}_2\text{-}Y_{18}\text{-OCO-}(\text{CH}_2)_m\text{-}$ , in which m is 1, 2 or 3,

$Y_8$  is alkyl having 1 to 18 carbon atoms, alkenyl having 3 to 18 carbon atoms, alkyl which has 3 to 20 carbon atoms, is interrupted by one or more oxygen or sulfur atoms or  $-\text{NT}_6\text{-}$  and/or is substituted by hydroxyl, alkyl which has 1 to 4 carbon atoms and is substituted by  $-\text{P}(\text{O})(\text{OY}_{14})_2\text{-}$ ,  $-\text{NY}_9\text{Y}_{10}\text{-}$  or  $-\text{OCoy}_{11}\text{-}$  and/or hydroxyl, alkenyl having 3 to 18 carbon atoms, glycidyl, or phenylalkyl having 1 to 5 carbon atoms in the alkyl moiety,

$Y_9$  and  $Y_{10}$  independently of one another are alkyl having 1 to 12 carbon atoms, alkoxyalkyl having 3 to 12 carbon atoms, dialkylaminoalkyl having 4 to 16 carbon atoms or cyclohexyl having 5 to 12 carbon atoms, or  $Y_9$  and  $Y_{10}$  together are alkylene, oxaalkylene or azaalkylene having in each case 3 to 9 carbon atoms,

$Y_{11}$  is alkyl having 1 to 18 carbon atoms, alkenyl having 2 to 18 carbon atoms or phenyl,

$Y_{12}$  is alkyl having 1 to 18 carbon atoms, alkenyl having 2 to 18 carbon atoms, phenyl, alkoxy having 1 to 12 carbon atoms, phenoxy, alkylamino having 1 to 12 carbon atoms or phenylamino,

$Y_{13}$  is alkyl having 1 to 18 carbon atoms, phenyl or alkylphenyl having 1 to 8 carbon atoms in the alkyl radical,

$Y_{14}$  is alkyl having 1 to 12 carbon atoms or phenyl,

$Y_{15}$  is alkylene having 2 to 10 carbon atoms, phenylene or a group  $-\text{phenylene-M-phenylene-}$  in which M is  $-\text{O-}$ ,  $-\text{S-}$ ,  $-\text{SO}_2\text{-}$ ,  $-\text{CH}_2\text{-}$  or  $-\text{C}(\text{CH}_3)_2\text{-}$ ,

$Y_{16}$  is alkylene, oxaalkylene or thiaalkylene having in each case 2 to 10 carbon atoms, phenylene or alkenylene having 2 to 6 carbon atoms,

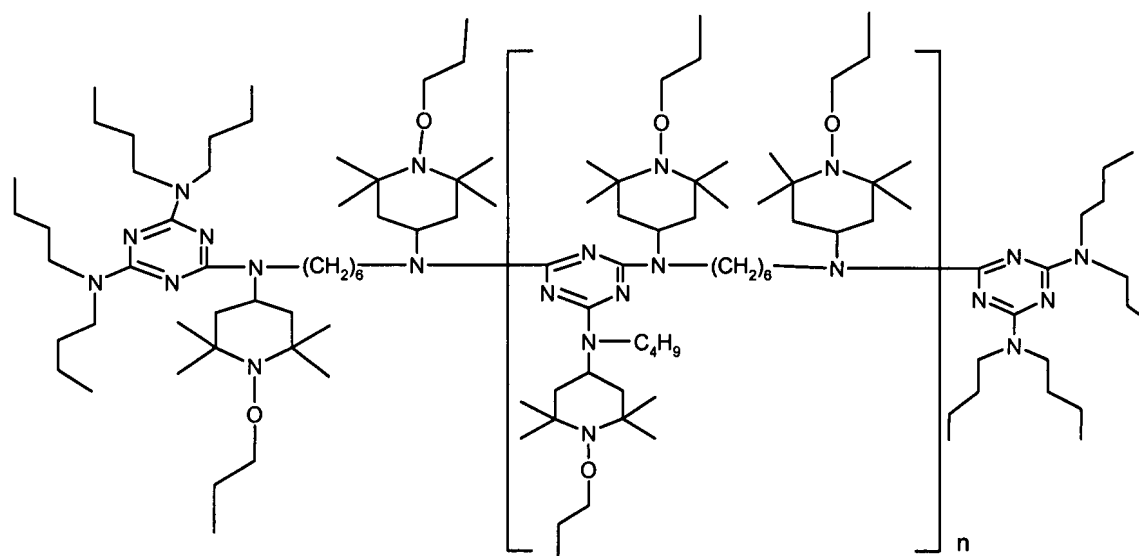
$Y_{17}$  is alkylene having 2 to 10 carbon atoms, phenylene or alkylphenylene having 1 to 11 carbon atoms in the alkyl moiety, and

$Y_{18}$  is alkylene having 2 to 10 carbon atoms or alkylene which has 4 to 20 carbon atoms and is interrupted once or several times by oxygen;

in the compounds of the formula (IV) x is an integer from 1 to 3 and the substituents L independently of one another are hydrogen, alkyl, alkoxy or alkylthio having in each case 1 to 22 carbon atoms, phenoxy or phenylthio.

9. **(previously presented)** A concentrated aqueous polymer dispersion according to claim 5 wherein the sterically hindered amine is selected from the group consisting of bis(2,2,6,6-tetramethyl-4-piperidyl)sebacate, bis(2,2,6,6-tetramethyl-4-piperidyl)succinate, bis(1,2,2,6,6-pentamethyl-4-piperidyl)sebacate, bis(1-octyloxy-2,2,6,6-tetramethyl-4-piperidyl)sebacate, bis(1,2,2,6,6-pentamethyl-4-piperidyl) n-butyl-3,5-di-tert-butyl-4-hydroxybenzylmalonate, the condensate of 1-(2-hydroxyethyl)-2,2,6,6-tetramethyl-4-hydroxypiperidine and succinic acid, linear or cyclic condensates of N,N'-bis(2,2,6,6-tetramethyl-4-piperidyl)hexamethylenediamine and 4-tert-octylamino-2,6-dichloro-1,3,5-triazine, tris(2,2,6,6-tetramethyl-4-piperidyl)nitrilotriacetate, tetrakis(2,2,6,6-tetramethyl-4-piperidyl)-1,2,3,4-butane-tetracarboxylate, 1,1'-(1,2-ethanediyl)-bis(3,3,5,5-tetramethylpiperazinone), 4-benzoyl-2,2,6,6-tetramethylpiperidine, 4-stearyloxy-2,2,6,6-tetramethylpiperidine, bis(1,2,2,6,6-pentamethylpiperidyl)-2-n-butyl-2-(2-hydroxy-3,5-di-tert-butylbenzyl)malonate, 3-n-octyl-7,7,9,9-tetramethyl-1,3,8-triazaspiro[4.5]decan-2,4-dione, bis(1-octyloxy-2,2,6,6-tetramethylpiperidyl)succinate, linear or cyclic condensates of N,N'-bis-(2,2,6,6-tetramethyl-4-piperidyl)hexamethylenediamine and 4-morpholino-2,6-dichloro-1,3,5-triazine, the condensate of 2-chloro-4,6-bis(4-n-butylamino-2,2,6,6-tetramethylpiperidyl)-1,3,5-triazine and 1,2-bis(3-aminopropylamino)ethane, the condensate of 2-chloro-4,6-di-(4-n-butylamino-1,2,2,6,6-pentamethylpiperidyl)-1,3,5-triazine and 1,2-bis-(3-aminopropylamino)ethane, 8-acetyl-3-dodecyl-7,7,9,9-tetramethyl-1,3,8-triazaspiro[4.5]decane-2,4-dione, 3-dodecyl-1-(2,2,6,6-tetramethyl-4-piperidyl)pyrrolidin-2,5-dione, 3-dodecyl-1-(1,2,2,6,6-pentamethyl-4-piperidyl)pyrrolidine-2,5-dione, a mixture of 4-hexadecyloxy- and 4-stearyloxy-2,2,6,6-tetramethylpiperidine, a condensation product of N,N'-bis(2,2,6,6-tetramethyl-4-piperidyl)hexamethylenediamine and 4-cyclohexylamino-2,6-dichloro-1,3,5-triazine, a condensation product of 1,2-bis(3-aminopropylamino)ethane and 2,4,6-trichloro-1,3,5-triazine as well as 4-butylamino-2,2,6,6-tetramethylpiperidine; N-(2,2,6,6-tetramethyl-4-piperidyl)-n-dodecylsuccinimide, N-(1,2,2,6,6-pentamethyl-4-piperidyl)-n-dodecylsuccinimide, 2-undecyl-7,7,9,9-tetramethyl-1-oxa-3,8-diaza-4-oxo-spiro[4,5]decane, a reaction product of 7,7,9,9-tetramethyl-2-cycloundecyl-1-oxa-3,8-diaza-4-oxospiro [4,5]decane und epichlorohydrin, 1,1-bis(1,2,2,6,6-pentamethyl-4-piperidyl)oxycarbonyl-2-(4-methoxyphenyl)ethene, N,N'-bis-formyl-N,N'-bis(2,2,6,6-tetramethyl-4-piperidyl)hexamethylenediamine, diester of 4-methoxy-methylene-malonic acid with 1,2,2,6,6-pentamethyl-4-hydroxypiperidine, poly[methylpropyl-3-oxy-4-(2,2,6,6-tetramethyl-4-piperidyl)]siloxane and reaction product of maleic acid anhydride- $\alpha$ -olefin-copolymer with 2,2,6,6-tetramethyl-4-aminopiperidine, 1,2,2,6,6-pentamethyl-4-aminopiperidine, 2,4-bis[N-(1-cyclohexyloxy-2,2,6,6-tetramethylpiperidine-4-yl)-N-butyl-amino]-6-(2-hydroxyethyl)amino-1,3,5-triazine, 1-(2-Hydroxy-2-methylpropoxy)-4-octadecanoyloxy-2,2,6,6-tetramethylpiperidine,

5-(2-ethylhexanoyl)oxymethyl-3,3,5-trimethyl-2-morpholinone or a compound



in which n is from 1 to 15.

10. **(currently amended)** A process for the preparation of a concentrated aqueous polymer dispersion with an average particle size of less than 1000 nm comprising the step of polymerizing at least one ethylenically unsaturated monomer in the presence of a non-polar organic light stabilizer by heterophase radical polymerization; wherein the weight ratio of non-polar organic light stabilizer to polymer carrier formed from the ethylenically unsaturated monomer is greater than ~~[[50]]~~ 100 parts of light stabilizer per 100 parts of polymer carrier.

11. **(currently amended)** A process according to claim 10 comprising the steps of

- dissolving, emulsifying or dispersing a non-polar organic light stabilizer in at least one ethylenically unsaturated monomer;
- preparing a conventional oil in water emulsion of said light stabilizer dissolved, emulsified or dispersed in at least one ethylenically unsaturated monomer;
- homogenizing the conventional emulsion to a miniemulsion wherein the droplets of the organic phase have an average diameter below 1000 nm;
- polymerizing the miniemulsion by adding a polymerization initiator;

wherein the weight ratio of non-polar organic light stabilizer to polymer carrier formed from the ethylenically unsaturated monomer is greater than ~~[[50]]~~ 100 parts of light stabilizer per 100 parts of polymer carrier.



12. **(original)** A polymer powder obtainable by vaporizing the volatile components of the concentrated aqueous polymer dispersion according to claim 1.

13. **(original)** A composition stabilized against thermal, oxidative or light-induced degradation which comprises,

- (a) an organic material susceptible to thermal, oxidative or light induced degradation, and
- (b) a concentrated aqueous polymer dispersion according to claim 1.

14. **(original)** A composition according to claim 13 wherein the amount of component b) is from 0.1 to 40% by weight based on the weight of the solid content of component a).

15. **(original)** A composition according to claim 13 wherein the organic material is a recording material.

16. **(original)** A composition according to claim 15 wherein the recording material is a photographic material or an ink jet material.

17. **(original)** A composition according to claim 15 wherein the recording material is a printed material containing the concentrated aqueous polymer dispersion in an overprint varnish.

18. **(previously presented)** A composition according to claim 13 wherein the organic material (a) is an adhesive, an aqueous emulsion of a natural or synthetic rubber, a water based ink or a water based coating.

19. **(cancelled)**.

20. **(original)** A powder coating composition stabilized against thermal, oxidative or light-induced degradation comprising

- a) a solid binder material; and
- b) a polymer powder according to claim 12.

21. **(original)** A composition stabilized against thermal, oxidative or light-induced degradation comprising

- a) a thermoplastic polymer and
- b) a polymer powder according to claim 12.

22. **(previously presented)** A method of stabilizing an organic material susceptible to thermal, oxidative or light induced degradation, which comprises incorporating therein a stabilizingly effective amount of a concentrated aqueous polymer dispersion according to claim 1.

23. **(previously presented)** A method of stabilizing a powder coating against thermal, oxidative or light-induced degradation, which comprises incorporating therein a stabilizingly effective amount of a polymer powder according to claim 12.